## AMENDMENTS TO THE CLAIMS

21.     (currently amended) A method of making an electronic component, comprising:

(a) providing a self-assembled nanocell, wherein the self-assembled nanocell comprises at least one input lead;

at least one output lead; and

a nano-network spanning the input lead and the output lead, wherein the nano- network comprises a random array of molecular circuit components, nanoscale components or the combination thereof; and

(b) programming the nanocell to function as the electronic component, wherein programming the nanocell comprises applying a self-adaptive algorithm to reconfigure the molecular circuit components.

22.     (canceled)

23.     (currently amended) The method according to claim 21 22 wherein the molecular circuit components are selected from the group consisting of molecular switches, molecular diodes, molecular wires, molecular rectifiers, molecular resistors, molecular transistors, molecular memories and combinations thereof.

24.     (original) The method according to claim 23 wherein the molecular circuit components

comprises molecular resonant tunneling diodes.

25.    (original) The method according to claim 24 wherein the molecular circuit components exhibit negative differential resistance.

26.    (currently amended) The method according to claim ~~22~~ 21 wherein the ~~nano network further comprises~~ nanoscale components are selected from the group consisting of nanotubes, nanoparticles, nanorods, and combinations thereof.

27.    (canceled)

28.    (original) The method according to claim 21 wherein step (b) comprises:

(b1) configuring tile molecular circuit components.

29.    (original) The method according to claim 28 wherein step (b1) comprises

(b1.i) adjusting a conductivity-affecting property of at least one of the molecular circuit components by applying a voltage across the input lead and the output lead.

30.    (original) The method according to claim 29 wherein the conductivity-affecting property is selected from the group consisting of charge, conformational state, electronic state, and combinations thereof.

31.    (original) The method according to claim 28 wherein step (b) further comprises:

(b2) testing the performance of the nanocell.

32.    (canceled)

33.    (currently amended) The method according to claim 21, 32 wherein the self-adaptive algorithm is selected from the group consisting of genetic algorithms, simulated annealing algorithms, go with the winner algorithms, temporal difference learning learning algorithms, reinforcement learning algorithms, and combinations thereof.

34.    (currently amended) The method according to claim 31, 32 wherein applying a self- adaptive algorithm comprises step (b3). and wherein tile method further comprising comprises:

(b4) repeating the steps of:

    (b1) configuring the molecular circuit components:

    (b2) testing the performance of the nanocell;

    and (b3) applying a self-adaptive algorithm until the nanocell functions as the
    electronic component.

35.    (currently amended) The method according to claim 21 22 wherein the electronic component comprises a logic unit.

36.    (original) The method according to claim 35 wherein the logic unit is selected from the group consisting of truth tables supported by tile input leads and output leads.

37.    (currently amended) The method according to claim 36 wherein the logic unit is selected from the group consisting of an AND, an OR, an XOR, a NOR, an a NAND, a

NOT, an Adder, a Half-Adder, an inverse Half-Adder, a Multiplexer, a Decoder, and combinations thereof.

38. (currently amended) The method according to claim 21 ~~22~~ wherein the electronic component comprises a memory unit.

39. (currently amended) The method according to claim 21 ~~22~~ wherein step (a) comprises:

(a1) allowing a plurality of nanoscale components to self-assemble into a random array;

(a2) allowing the plurality of molecular circuit components to self-assemble into a random molecular interconnect between the nanoscale components; and

(a3) bonding the molecular circuit components to the nanoscale components with molecular alligator clips.

40. (original) The method according to claim 39 wherein the molecular alligator clips are selected from the group consisting of sulfur, oxygen, selenium, phosphorous, isonitrile, pyidine, carboxylate, and thiol moieties.

41. (original) The method according to claim 39 wherein tile nanoscale components are selected from the group consisting of nanotubes, nanoparticles, nanorods, and combinations thereof.

42.    (original) The method according to claim 39 wherein the molecular circuit components are selected from the group consisting of molecular switches, molecular diodes, molecular wires, molecular rectifiers, molecular resistors, molecular transistors and combinations thereof.


Claims 43-56 (canceled)


57    (new) The method according to claim 34, wherein steps (b1), (b2), and (b3) are executed in consecutive order.


*<remainder of page left intentionally blank>*